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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,456	09/30/2003	Ralph N. Martins	520531-2001	5975

20999 7590 03/09/2007
FROMMER LAWRENCE & HAUG
745 FIFTH AVENUE- 10TH FL.
NEW YORK, NY 10151

EXAMINER

STANDLEY, STEVEN H

ART UNIT	PAPER NUMBER
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1649

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/674,456	MARTINS, RALPH N.	
	Examiner	Art Unit	
	Steven H. Standley	1649	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) 1-25, 40-44 and 46 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26, 39, 45 and 47 is/are rejected. 26-39, 45, 47
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☒ Other: Notice to comply square rules

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group II, claims 26-39, 45, and new claim 47 in the reply filed on 10/18/06 is acknowledged. The traversal is on the ground(s) that a search of all the inventions would not represent a burden on the examiner. This is not found persuasive because the inventions are patentably distinct, firstly, and secondly searches of each invention would not be coextensive. Thus, it would be a burden on the examiner to search all, or any other distinct invention, with the currently elected on. See the restriction of 4/18/06. For instance, the peptides of the instant invention could be found with a method of isolating or identifying that is entirely different than the one of invention I. The method of inhibiting SOD activity of Group III can be accomplished with peptides not of invention II and not identified by the invention of group I.

The requirement is still deemed proper and is therefore made FINAL.

Priority

Priority is to the filing date of the international application, 12/30/02.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 2/28/07 has been considered by the examiner in part by the examiner. However, several prior art references consist merely of database sequences denoted by Accession numbers. The examiner has considered them insofar as possible. However, He cannot determine the relevance of these sequences to the instant claims without appropriate comparisons,

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such as sequence alignments. Moreover, the reference "Jobling et al (2001)" has not been considered, as it is not present in the case file.

Specification

3. The disclosure is objected to because of the following informalities: The first line of the specification should contain applicant's priority information.

Appropriate correction is required.

Sequence Compliance

4. This application contains sequence disclosures that are encompassed by the definitions for nucleotide and /or amino acid sequences set forth in 37 CFR 1821(a)(1) and (a)(2). However, this application fails to comply with the requirements of 37 CFR 1.821 through 1.825 because 37 CFR 1.821 (a)(2)(c-d) states that each sequence disclosed must appear separately in the sequence listing and in the text of the description and claims whenever described. For example, a SEQ ID NO: and sequence listing is required for the peptide sequence listed in claim 47. See MPEP 2422 & 2431. Applicant must comply with the requirements of the sequence rules (37 CFR 1.821-1.825) before the application can be examined under 35 U.S.C. § 131 and 132.

Claim Objections

5. Claims 37-39 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot be dependent from a claim that is multiply

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dependent. See MPEP § 608.01(n). Appropriate correction is required. The examiner has, however, considered claims 37-39. See the rejections below.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claim 45 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for making the polypeptide of SEQ ID NO: 3 that binds a-beta, does not reasonably provide enablement for a pharmaceutical composition for the treatment of any disease or condition. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the instantly claimed peptides in a pharmaceutical composition of the invention commensurate in scope with these claims.

The factors considered when determining if the disclosure satisfies the enablement requirement and whether any necessary experimentation is "undue" include, but are not limited to:

1) nature of the invention, 2) state of the prior art, 3) relative skill of those in the art, 4) level of predictability in the art, 5) existence of working examples, 6) breadth of claims, 7) amount of direction or guidance by the inventor, and 8) quantity of experimentation needed to make or use the invention. In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

The nature of the invention is a peptide of SEQ ID NO: 3 that binds to a-beta. While one skilled in the art would know to make such a peptide, its effective use for treatment of any disease is complex, because SEQ ID NO: 3 is derived from a method of merely identifying ***candidate*** peptides for treatment. Thus, peptide may or may not be effective at treating any one of myriad diseases linked to SOD activity.

The state of the prior art indicates not all peptides that bind a causative agent with SOD activity are therapeutic. For instance, the full length p75 receptor binds a-beta, and p75 mediates cell death via that interaction (see Yaar et al, 2002). Thus, the art teaches peptides that bind a causative agent with SOD activity (a-beta) that are not therapeutic, but injurious.

The breadth of the claims are such that they encompass unknown, undisclosed, and structurally undefined peptides and peptidomimetics.

The specification gives no guidance or examples illustrating as to how to use the instant peptides to treat any disease.

Due to the large quantity of experimentation necessary to use the instant invention in a pharmaceutical composition, the lack of direction/guidance presented in the specification regarding use, the absence of working examples directed to same, the complex nature of the invention, the state of the prior art which established the unpredictability of treatment with a peptide that binds a causative agent with SOD activity, and the breadth of the claims which fail to recite functional limitations, undue experimentation would be required of the skilled artisan to make and/or use the claimed invention in its full scope.

7. Claims 26-39, 45 and 47 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 26 and 28-39, and 45 are to structurally undefined and limitless peptides obtained through a very broadly defined method. These peptides have no length limits and no requirements for any relation in sequence structure. One of skill in the art would not recognize any aspect of a peptide inasmuch as it would be selected by the method. Further, the claims that do recite sequence, 27, 37-39 (in part) and 47 claim "functional variants," or "peptidomimetics." The specification provides no definition or comprehensible boundaries for the term peptidomimetic and therefore they could be anything. Functional variants is defined broadly in the specification and is readable upon virtually any sequence (see the art rejections below).

To provide evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. In the instant application, no such distinctions have been made. The factors to be considered include disclosure of complete or partial structure, physical and/or chemical properties, functional characteristics, structure/function correlation, methods of making the claimed product, or any combination thereof. In this case, the only factor present in the claim is a partial structure in the form of a recitation of a name. There is not even identification

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of any particular portion of the structure that must be conserved for the binding of a peptide to α -beta.

Accordingly, in the absence of sufficient recitation of distinguishing identifying characteristics, the specification does not provide adequate written description of the claimed genus.

Vas-Cath Inc. v. Mahurkar, 19USPQ2d 1111, clearly states that “applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of *the invention*. The invention is, for purposes of the ‘written description’ inquiry, *whatever is now claimed*.” (See page 1117.) The specification does not “clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed.” (See *Vas-Cath* at page 1116). As discussed above, the skilled artisan cannot envision the detailed chemical structure of the encompassed genus of polynucleotides, and therefore conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method of isolating it. The compound itself is required. See *Fiers v. Revel*, 25 USPQ2d 1601 at 1606 (CAFC 1993) and *Amgen Inc. v. Chugai Pharmaceutical Co. Ltd.*, 18 USPQ2d 1016.

One cannot describe what one has not conceived. See *Fiddes v. Baird*, 30 USPQ2d 1481 at 1483. In *Fiddes*, claims directed to mammalian FGF's were found to be unpatentable due to lack of written description for that broad class. The specification provided only the bovine sequence.

Therefore, only polypeptides comprising the amino acid sequence set forth in SEQ ID NOs, but not the full breadth of the claim meets the written description provision of 35 U.S.C. §112, first paragraph. Applicant is reminded that *Vas-Cath* makes clear that the written description provision of 35 U.S.C. §112 is severable from its enablement provision (see page 1115).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 26-39, and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by Wakasugi et al (1994; see appendix A for alignment).

Wakasugi et al disclose a peptide with 58% identity to the peptide of SEQ ID NO: 3, which was identified by a process of studying protein-protein interactions. The peptide of SEQ ID NO: 3 meets the limitations of claim 27 and 37 because it is substantially identical to SEQ ID NO: 3, would therefore inherently be a functional variant thereof. Wakasugi et al meet the limitations of claim 26 because, "WHEN THE STRUCTURE RECITED IN THE REFERENCE IS SUBSTANTIALLY IDENTICAL TO THAT OF THE CLAIMS, CLAIMED PROPERTIES OR FUNCTIONS ARE PRESUMED TO BE INHERENT (MPEP § 2112.01)." Thus, the peptide of Wakasugi would inherently be found through the recited assay. In addition, the peptide of Wakasugi et al

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would inherently have the functional characteristics of claims 28-36. Furthermore, since Wakasugi et al disclose a peptide, which is also reasonably a peptidomimetic which meets the limitations of claim 38. Wakasugi disclosed a sequence containing the region that encodes the substantially identical peptide in 1994 (see appendix b). Kawasaki et al also report a fragment of the peptide of SEQ ID NO: 3 (See 'RNR'), which meets the limitations of claim 47.

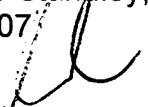
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Standley whose telephone number is **(571) 272-3432**. The examiner can normally be reached on Monday through Friday, 8:00 AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Andres can be reached on **(571) 272-0867**.

The fax number for the organization where this application or proceeding is assigned is **703-872-9306**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866-217-9197** (toll-free).

Steve Standley, Ph.D.
3/01/07



James R. Ramey
JAMES R. RAMEY
PATENT EXAMINER

NOTICE TO COMPLY WITH REQUIREMENTS FOR PATENT APPLICATIONS CONTAINING NUCLEOTIDE SEQUENCE AND/OR AMINO ACID SEQUENCE DISCLOSURES	Application No.	Applicant(s)	
	10/674,456	MARTINS, RALPH N.	
	Examiner	Art Unit	
	Steven H. Standley	1647	

The nucleotide and/or amino acid sequence disclosure contained in this application does not comply with the requirements for such a disclosure as set forth in 37 C.F.R. 1.821 - 1.825 for the following reason(s):

- ☒ 1. This application clearly fails to comply with the requirements of 37 C.F.R. 1.821-1.825. Applicant's attention is directed to the final rulemaking notice published at 55 FR 18230 (May 1, 1990), and 1114 OG 29 (May 15, 1990). If the effective filing date is on or after July 1, 1998, see the final rulemaking notice published at 63 FR 29620 (June 1, 1998) and 1211 OG 82 (June 23, 1998).
- ☐ 2. This application does not contain, as a separate part of the disclosure on paper copy, a "Sequence Listing" as required by 37 C.F.R. 1.821(c).
- ☐ 3. A copy of the "Sequence Listing" in computer readable form has not been submitted as required by 37 C.F.R. 1.821(e).
- ☐ 4. A copy of the "Sequence Listing" in computer readable form has been submitted. However, the content of the computer readable form does not comply with the requirements of 37 C.F.R. 1.822and/or 1.823, as indicated on the attached copy of the marked -up "Raw Sequence Listing."
- ☐ 5. The computer readable form that has been filed with this application has been found to be damaged and/or unreadable as indicated on the attached CRF Diskette Problem Report. A substitute computer readable form must be submitted as required by 37 C.F.R. 1.825(d).
- ☐ 6. The paper copy of the "Sequence Listing" is not the same as the computer readable form of the "Sequence Listing" as required by 37 C.F.R. 1.821(e).
- ☒ 7. Other: Claim 47 fails to recite the appropriate SEQ ID NO:

Applicant Must Provide:

- ☐ computer readable form (CRF) copy of the "Sequence Listing".
- ☐ paper copy of the "Sequence Listing", as well as an amendment directing its entry into the specification.
- ☐ A statement that the content of the paper and computer readable copies are the same and, where applicable, include no new matter, as required by 37 C.F.R. 1.821(e) or 1.821(f) or 1.821(g) or 1.825(b) or 1.825(d).

For questions regarding compliance to these requirements, please contact:

For Rules Interpretation, call (571)272-2510
For CRF Submission Help, call (571)272-2501/2583
PatentIn Software Program Support (SIRA)
Technical Assistance.....703-287-0200
To Purchase PatentIn Software.....703-306-2600

PLEASE RETURN A COPY OF THIS NOTICE WITH YOUR RESPONSE

Appendix A

RN [1]
 RP NUCLEOTIDE SEQUENCE [LARGE SCALE GENOMIC DNA].
 RX MEDLINE=95024047; PubMed=7937893;
 RA Wakasugi T., Tsudzuki J., Ito S., Nakashima K., Tsudzuki T.,
 RA Sugiura M.;
 RT "Loss of all ndh genes as determined by sequencing the entire
 RT chloroplast genome of the black pine Pinus thunbergii.";
 RL Proc. Natl. Acad. Sci. U.S.A. 91:9794-9798(1994).
 CC -!- FUNCTION: Probable ATPase of unknown function. Its presence in a
 CC non-photosynthetic plant (Epifagus virginiana) and experiments in
 CC tobacco indicate that it has an essential function which is
 CC probably not related to photosynthesis.
 CC -!- SUBCELLULAR LOCATION: Plastid; chloroplast; chloroplast stroma (By
 CC similarity).
 CC -!- SIMILARITY: Belongs to the ycf2 family.
 CC -----
 CC Copyrighted by the UniProt Consortium, see <http://www.uniprot.org/terms>
 CC Distributed under the Creative Commons Attribution-NoDerivs License
 CC -----
 DR EMBL; D17510; BAA04460.1; -; Genomic_DNA.
 DR PIR; T07584; T07584.
 DR HAMAP; MF_01330; -; 1.
 DR InterPro; IPR003593; AAA_ATPase.
 DR InterPro; IPR003959; AAA_ATPase_central.
 DR InterPro; IPR008543; Cp_Ycf2.
 DR Pfam; PF00004; AAA; 1.
 DR Pfam; PF05695; DUF825; 1.
 DR SMART; SM00382; AAA; 1.
 KW ATP-binding; Chloroplast; Nucleotide-binding; Plastid.
 FT CHAIN 1 2054 Protein ycf2.
 FT /FTId=PRO_0000223067.
 FT NP_BIND 1377 1384 ATP (Potential).
 SQ SEQUENCE 2054 AA; 244607 MW; 6F5E92D078E33A9A CRC64;

 Query Match 58.0%; Score 47; DB 1; Length 2054;
 Best Local Similarity 60.0%; Pred. No. 1.6e+02;
 Matches 9; Conservative 1; Mismatches 5; Indels 0; Gaps 0;

 Qy 1 TNPNNRRNTPQMLKR 15
 | || ||| | :||
 Db 785 TRPNYRNRLPSDMKR 799

Sequence notes

RESULT 2

Q6AUA8_ORYSA

ID Q6AUA8_ORYSA PRELIMINARY; PRT; 950 AA.
 AC Q6AUA8;
 DT 13-SEP-2004, integrated into UniProtKB/TrEMBL.
 DT 13-SEP-2004, sequence version 1.
 DT 07-FEB-2006, entry version 7.
 DE Hypothetical protein P0017D10.13.
 GN Name=P0017D10.13;
 OS Oryza sativa (japonica cultivar-group).
 OC Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
 OC Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; BEP clade;
 OC Ehrhartoideae; Oryzeae; Oryza.
 OX NCBI_TaxID=39947;
 RN [1]
 RP NUCLEOTIDE SEQUENCE.
 RA Chow T.-Y., Hsing Y.-I.C., Chen C.-S., Chen H.-H., Liu S.-M.,
 RA Chao Y.-T., Chang S.-J., Chen H.-C., Chen S.-K., Chen T.-R.,

Appendix B

Nucleotide

Search for

Display Show Send to
 Hide: ☐ sequence ☐ all but gene, CDS and mRNA

Range: from to
☐ Reverse complemented strand
 Features:

☐ 1: [D17510](#). Reports *Pinus thunbergii* ...[gi:529643]

[Links](#)

[Comment](#) [Features](#) [Sequence](#)

LOCUS PINCPTRPG 119707 bp DNA linear PLN 13-AUG-1994
 DEFINITION Complete sequence of black pine (*Pinus thunbergii*) chloroplast DNA.
 ACCESSION D17510
 VERSION D17510 GI:529643
 KEYWORDS 16S ribosomal RNA; 23S ribosomal RNA; 4.5S ribosomal RNA; 5S ribosomal RNA; H⁺ - K⁺ ATPase beta subunit; RNA polymerase alpha-subunit; RNA polymerase beta subunit; RNA polymerase beta' subunit; RNA polymerase beta-2 subunit; RubisCO large subunit; cytochrome B6; cytochrome f; initiation factor; maturase; protochlorophyllide reductase; ribosomal protein L14; ribosomal protein L16; ribosomal protein L20; ribosomal protein L22; ribosomal protein L23; ribosomal protein L32; ribosomal protein L33; ribosomal protein L36; ribosomal protein S11; ribosomal protein S12; ribosomal protein S14; ribosomal protein S15; ribosomal protein S18; ribosomal protein S19; ribosomal protein S2; ribosomal protein S3; ribosomal protein S4; ribosomal protein S7; ribosomal protein S8.

SOURCE Unknown.
 ORGANISM Unknown.
 UNCLASSIFIED.

REFERENCE 3 (bases 1 to 119707)
 AUTHORS Tsudzuki,J., Ito,S., Tsudzuki,T., Wakasugi,T. and Sugiura,M.
 TITLE A new gene encoding tRNA pro (GGG) is present in the chloroplast genome of black pine: a compilation of 32 tRNA genes from black pine chloroplasts
 JOURNAL Curr. Genet. 26, 153-158 (1994)
 COMMENT Submitted (27-Aug-1993) to DDBJ by: Masahiro Sugiura
 Center for Gene Research
 Nagoya University
 Chikusa-ku, Nagoya 464-01
 Japan
 Phone: 052-781-5111 x3448
 Fax: 052-782-3849.

FEATURES Location/Qualifiers
 source 1..119707
 /organism="unknown"
 /mol_type="unassigned DNA"
 source 1..119707
 Site-ref 1..119707
 /note="full staff_review"
 Site-ref 1..119707
 /note="full staff_review"

ORIGIN

```
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121 taaaccagat acctgctacg ggccaagcag ctaagaagaa atgtaaagaa cgggagttgt
181 tgaaactagc atattggaag atcaatcggc cgaaataacc gtgagcagcc acaatattgt
241 aggtttcttc ctctgacca aatttgtaac ctgcatttgc ggactgattc tcagtagttt
301 ccctgatcaa actggaagtt accaaagaac catgcatagc actgaataga gagccgcgga
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481 cttgaccaat agggtagatc aagaaaacgg cagtagcagc tgcaacagga gctgagtatg
541 caacagcaat ccaaggacgc atacctagac ggaagctaag ctccactca cgacccatat
601 agcaagctac accaagtagg aagtgtagaa cgattagctc gtaaggaccc ccgttgtata
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781 gttcacgaat accatcaata tctactggag gagctgcgat gaaagcaata atgaatacag
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1141 tagaggtatt ttagatagac tctatctttt ttagatatat tccacactct atagatctat
1201 ctgtggttag atactccatc aaattattta ttcttggttc cagaaatgga gatcaattgg
1261 aatgagaaca gataggatcg aataagtatt tttttttttt tttttcgcta taacgaagtg
1321 caacgcaatt ctggaaccac attattaata aatttatatg agtggaaatg caattattta
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1921 cacgtatcgt acttttatgt ttacaggcta aagttttagc acatgataat aaaagtatat
1981 actttatacg atataaacca tctcgatcaa aggatccact gtagtaatga aaaagatttc
2041 tccaaatttg atcgaatcga tcgaggatat catcatctgt tagactggtc caagacaatt
2101 tactaattgg ccgccctgat atgtcacaga atttttctgt agccaataat ccaattattg
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2221 ctagcgtttt ggttctgacc aaaagagggt tcatccgaac cctcaaaaaa taacctggag
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